

Biocompatibility assay

- Critical Issues

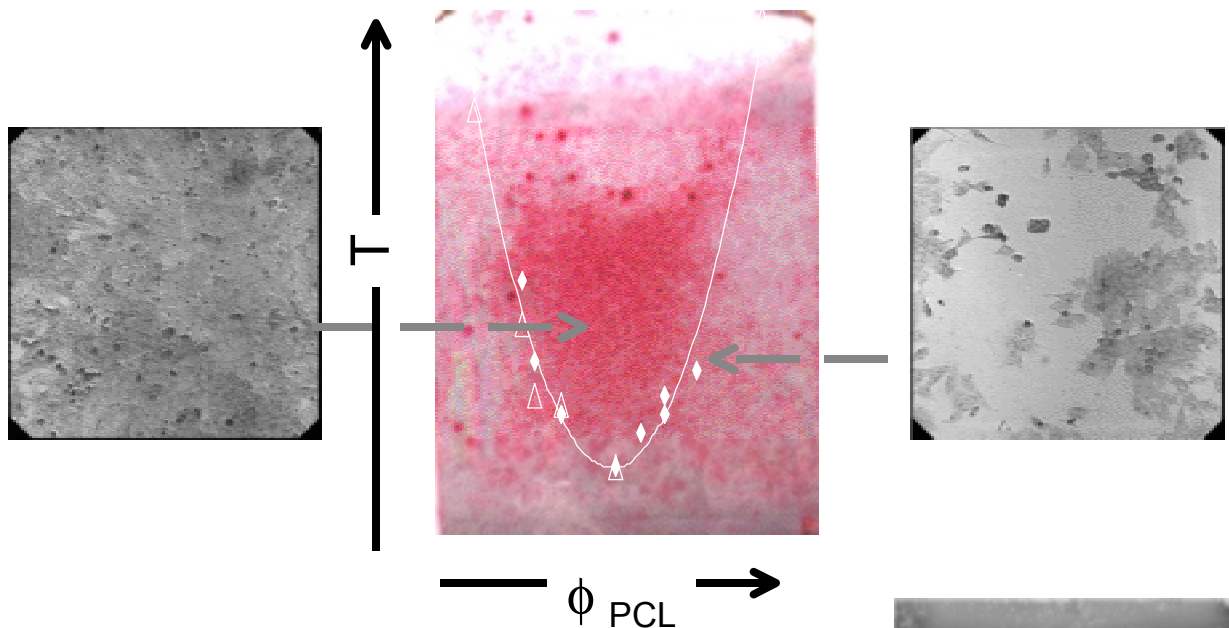
- It is widely perceived that biomaterials will become the dominant focus of materials research in the near future. Critical research areas are expected to be regenerative bioactive materials, self repair of biomaterials and implants adaptive to physiological conditions, determining in vivo performance and limitations of biomaterials, and development of novel bioactive fixation techniques.

- Research Strategy

- The combinatorial method will be advantageously used to assay biocompatibility of polymer surfaces prepared using surface assembly techniques with systematic variations of topography, chemical and geometrical patterning, hydrophobicity, charge and bioselectivity. Microscopy based high throughput screening tools will identify comparative biocompatibility as measured by protein adsorption and cell growth, adhesion and differentiation. A cell culturing laboratory has been constructed in the Polymers Division.

- Research Highlights

- Osteoblast cells were cultured onto morphologically and compositionally phase separated polymer blend surfaces of PCL/PLA, covering the full range of composition from pure PCL to pure PLA. Using staining techniques, the biocompatible region was isolated on the combinatorially prepared and assayed surface. Similar attempts are underway to investigate the effect of surface patterning of biocompatible polymers for unique biocompatibility effects.



For more information ...

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Control shows uniform coverage on tissue culture polystyrene